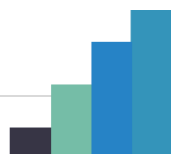# *Project Report*

On

"Quiz Application in Java"

Project Report

On

Quiz Application in Java

Submitted To:

MD. Mahbub-Or-Rashid
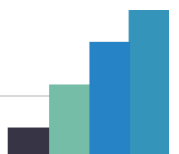
Assistant Professor
Department of CSE, BUBT

Submitted By:

Group: 9

| Name	ID	Intake/Section
MD. Ashikur Rahman	21225103**471**	49/06
Abdullah Al Mahmud Joy	21225103**506**	49/06
Kaspia Alam	21225103**487**	49/06
Mirza Niaz Morshed	21225103**467**	49/06
Ayesha Siddika Esha	21225103**495**	46/06

<u>ACKNOWLEDGEMENT</u>

We express our gratitude and sincere thanks to our teacher **MD. Mahbub-Or-Rashid** Department of **CSE** for his gracious efforts and keen pursuit, which have remained a valuable asset to the success of our project report. His dynamism and diligent enthusiasm have been highly instrumental in keeping our spirits high. His flawless and forthright suggestions blended with an innate intelligent application have crowned our task with the success. We truly appreciate and value his esteemed guidance and encouragement from the beginning to the end of this Project. We are indebted to him for having helped us shape the problem and providing insights into the solution

At last, we are highly thankful to the Almighty, who has given us the courage and wisdom throughout this whole journey.
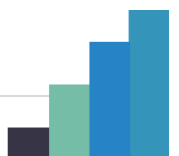
ABSTRACT

In this paper we are developing a Quiz Application in Java that aims to provide users both teachers and students with an interactive platform to participate in quizzes on various topics. The application will be designed to offer a user friendly experience while efficiently managing questions, answers, and scoring all while managing a secure database to store our data and results in a user friendly interface.
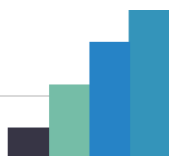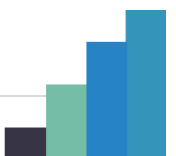
Table of Contents

| Chapter	Content	Page
1	Introduction	6
2	Background, Motivation, and Objectives	7-8
3	Proposed method	9-10
4	Methodology and simulations	11-22
5	Results and Discussions	23
6	Conclusion	24

Chapter 1

1.1 Introduction

The purpose of this project is to create an accessible and enjoyable Java Quiz Application to enhance learning experiences. Welcome to our Java Quiz Application project, aimed at creating an engaging learning experience for educators, students, and quiz enthusiasts. Our objective is to develop a user-friendly app covering diverse subjects, incorporating an interactive feature that allows real-time participation and score comparison.

Leveraging the capabilities of Java, we are integrating a secure database to efficiently manage quiz content, ensuring scalability for future enhancements. The application's design prioritizes simplicity for easy navigation and inclusivity, accommodating users of all abilities. Multimedia elements, including images, audio, and video, enhance the overall learning journey.

User engagement is central to our project, with instant feedback and a motivational scoring system to encourage continuous improvement. Rigorous testing is conducted across various devices to address potential issues, and user feedback is actively sought for ongoing refinement.

This project represents the convergence of Java's power with interactive quizzes, facilitating an enjoyable and seamless learning experience.
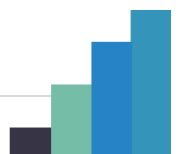
Chapter 2

2.1 Background

The Java Quiz Application project responds to the changing educational landscape, amplified by the challenges of the COVID-19 pandemic. With physical classrooms constrained due to safety measures, there is a heightened need for an online, interactive learning tool. The limitations imposed by the pandemic underscore the importance of virtual solutions, where a dynamic quiz platform becomes a valuable educational resource. This project aims to address the educational void created by COVID-19 restrictions, offering a versatile and accessible avenue for knowledge assessment and reinforcement.

2.2 Motivation

The motivation behind the Java Quiz Application project is rooted in the desire to transform adversity into opportunity. Faced with the constraints of the COVID-19 pandemic, where traditional classrooms are limited, there's an earnest need to foster engaging and accessible learning experiences. This project is driven by the belief that by harnessing the power of technology, specifically through a dynamic quiz platform, we can not only adapt to the current challenges but also create an innovative and enjoyable way for individuals to continue learning and testing their knowledge in a virtual environment.
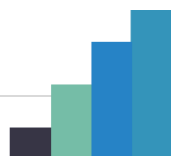
2.3 Objectives

The primary objectives of the project are as follows:

1.Create a User Interface: Develop an intuitive user interface that allows users to access quizzes, answer questions, and view results.

2.Question Management: Implement a system to manage questions, including adding, editing, and deleting questions.

3.Scoring System: Design a scoring mechanism that calculates and displays users' scores based on their answers.

4.Multiple Choice Questions: Support multiple-choice questions with options and the ability to select a single correct answer. 5.User Authentication: Implement user authentication to ensure secure access and personalized user profiles.

5.Timed Quizzes: Provide an option to set time limits for quizzes, ensuring a challenging and engaging experience.

6.Feedback: Enable users to receive feedback on their answers, showing correct answers for incorrect responses.

7.Admin Panel: Develop an admin panel to manage quiz content
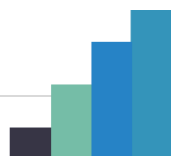
Chapter 3

3. Proposed method

Our approach for developing the Java Quiz Application involves leveraging the **NetBeans Java IDE** for streamlined coding and project management. The application's data will be stored and managed using SQL for efficient database operations.

Key Steps:

User Interface Design with JFrame: Utilize the NetBeans IDE to create an intuitive and visually appealing user interface using JFrame. This includes designing screens for quizzes, user registration, login, and results.

Database Setup using SQL: Implement a robust database structure using SQL to store user information, quiz questions, and results. Establish connections between the Java application and the SQL database to facilitate seamless data retrieval and storage.

User Authentication: Develop a secure login system using Java authentication mechanisms to ensure user privacy and data integrity.

Quiz Customization: Allow course teacher to customize quizzes through the application's interface such as update question, add new question, delete question, view result of the students etc.

Score Tracking and Analytics: Develop a robust scoring and analytics system using Java to keep track of individual and group
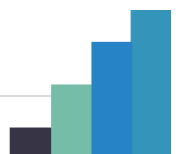
performance over time. Provide detailed insights into quiz results and progress.

Thorough Testing: Conducting rigorous testing of the application using the NetBeans IDE and Java testing frameworks. Identify and address any bugs or issues to ensure the smooth functionality of the quiz app.

Documentation: Create comprehensive documentation using NetBeans, detailing the application's architecture, code structure, and usage instructions. This will serve as a guide for future development and troubleshooting.

Used components:

1. NetBeans

2. SQL Connector (JDBC)

3. JFrame (Java Swing)

4. Java-based authentication system

5. Custom Java code for quiz customization

6. Graphics and UI elements (such as photos)
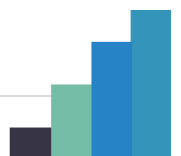
4. Methodology:

1. Index Class:
  - Purpose: Represents the main entry point of the application.
  - Functionality: Displays the initial landing page with options for teachers and students to access different sections.
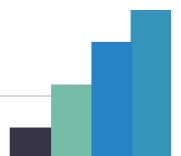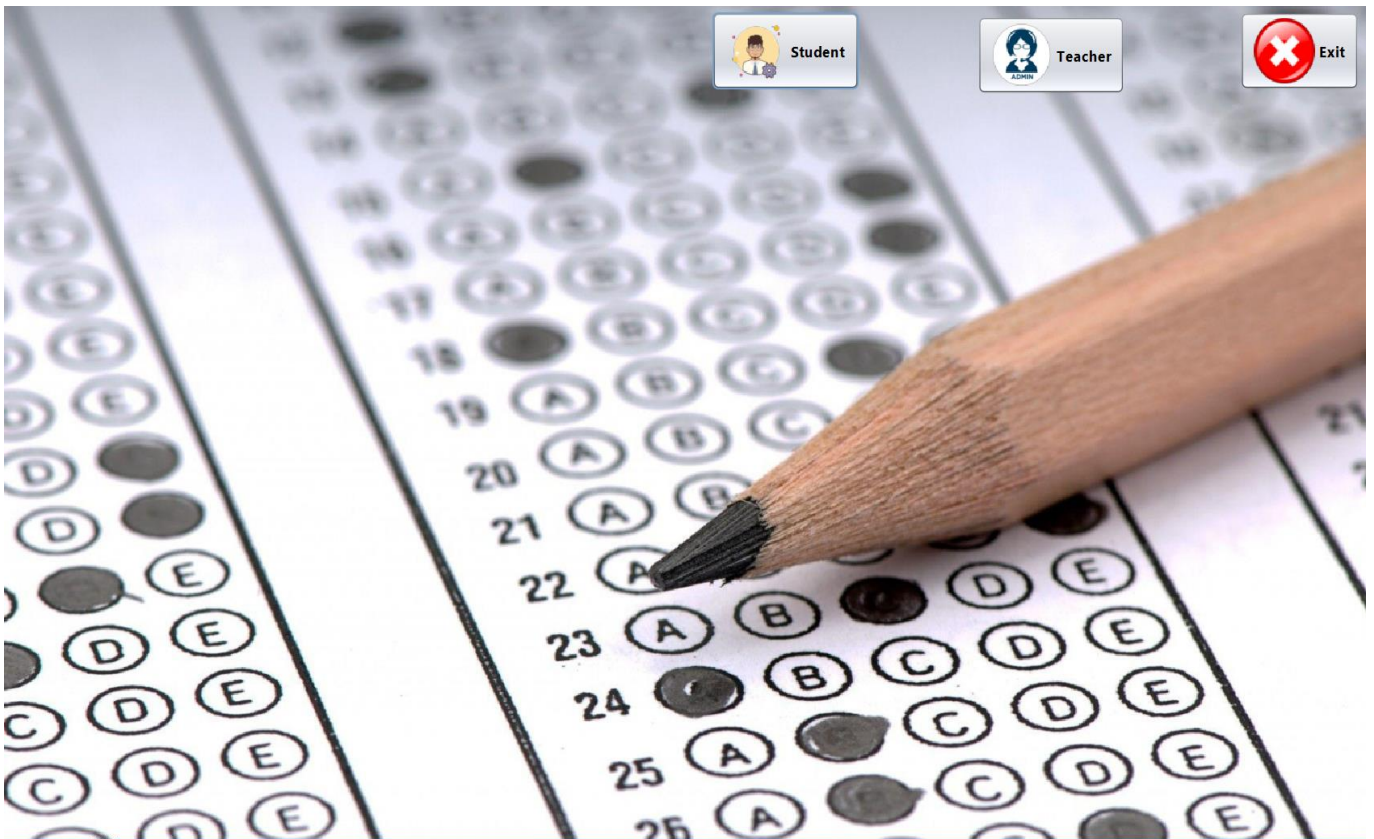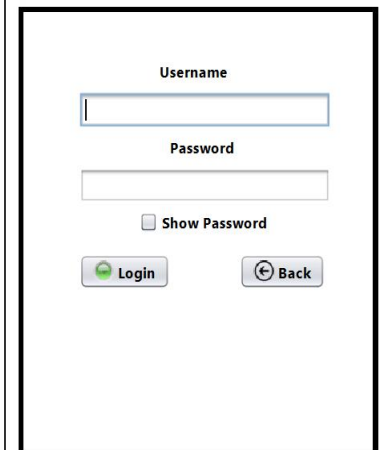
2. Login Teacher Class:

- Purpose: Allows teachers to log into the system using unique credentials.

- Functionality: Validates teacher login credentials and grants access to the admin dashboard upon successful authentication.

Department of CSE
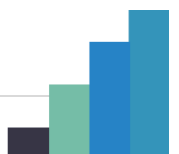
3. Admin Home Class:

   - Purpose: Exclusive access for teachers to manage and customize quizzes.

   - Functionality: Provides a secure space for teachers to add/delete questions, view student results, and navigate to other admin-specific functionalities.
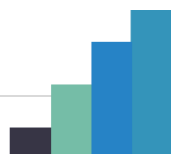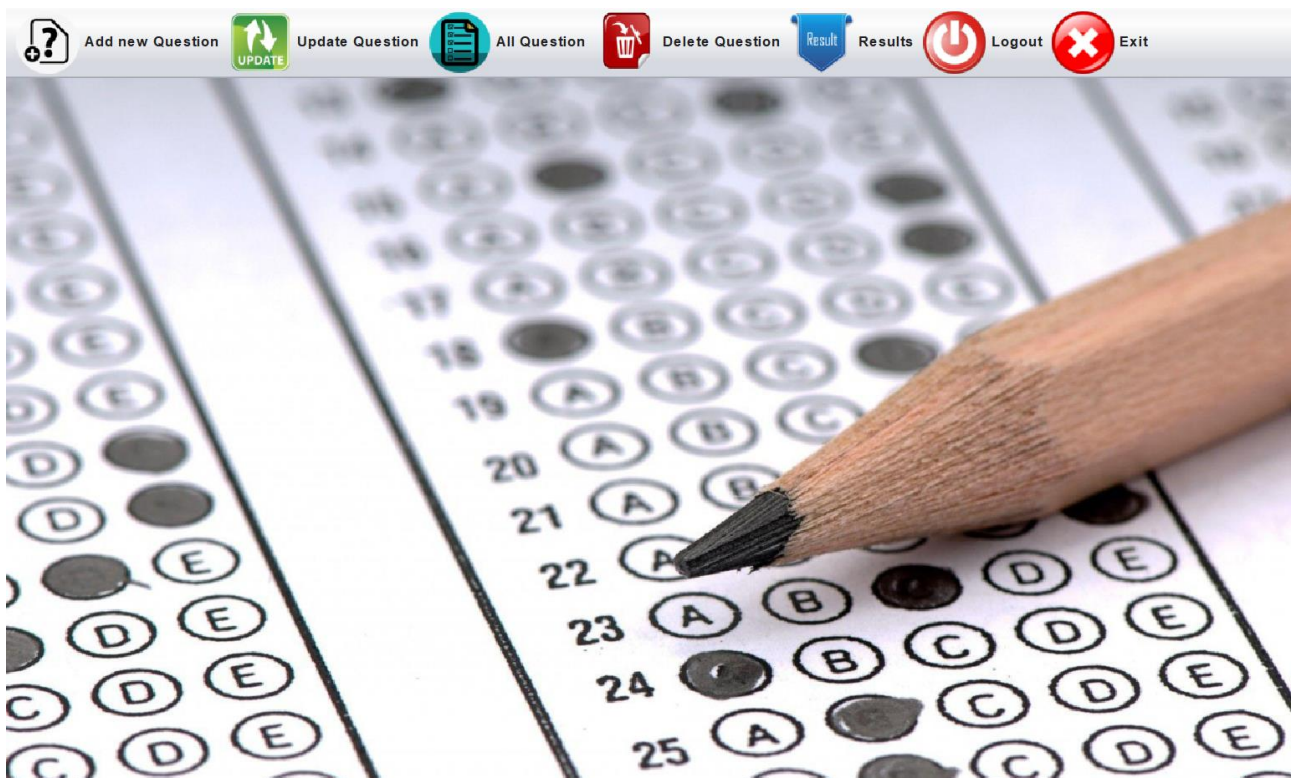
4. Add New Question Class:

-Purpose: Allows teachers to add new questions to the question bank.

- Functionality: Provides a user interface for teachers to input and submit new quiz questions, ensuring seamless integration into the question database.
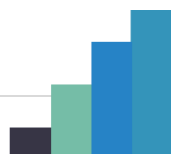
5. Update Question Class:

  - Purpose: Permits teachers to modify existing questions in the question bank.

  - Functionality: Offers a platform for teachers to select and edit questions.
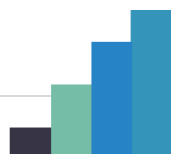
6. Delete Question Class:

  - Purpose: Enables teachers to remove specific questions from the question bank.
- Functionality: Provides a mechanism for teachers to maintain and update the question database.
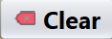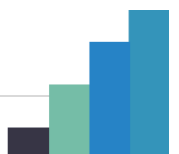
7. All Question Class:

- Purpose: Displays a list of all available questions in the database.
- Functionality: Allows teachers to view and manage the entire question bank for quiz customization.

id	name	opt1	opt2	opt3	opt4	answer
1	What is the primary go...	To hide hardware detai...	To maximize hardwar...	To minimize software ...	To optimize system pe...	To hide hardware detai...
2	Which level of comput...	Application level	High-level language lev...	Assembly level	Logic gate level	Assembly level
3	What is a microarchit...	The highest level of ab...	The design of the CPU	The programming lang...	The software applicatio...	The design of the CPU
4	Which level of comput...	High-level language lev...	Assembly level	Machine level	Application level	High-level language lev...
5	What is the primary pu...	To specify the organiz...	To define the machine l..	To implement high-lev...	To manage input/outpu...	To define the machine ...
6	Which type of comput...	RISC	CISC	SIMD	MIMD	CISC
7	In computer architectur..	Single Instruction, Sin...	Single Instruction, Multi...	Multiple Instruction, Sin...	Multiple Instruction, Mu...	Single Instruction, Multi...
8	Which computer comp...	Hard disk drive (HDD)	Central processing unit...	Random access mem...	Graphics processing u...	Random access mem...
9	The oldest DB model i...	Network	Physical	Hierarchical	Relational	Network
10	The term "von Neuma...	RISC	CISC	Harvard architecture	Single-memory archite...	Single-memory archite...
11	What is the purpose o...	What is the purpose o...	To store frequently acc...	To store program instr...	To manage input/outpu...	To store frequently ac...
12	Which computer abstr...	Application level	High-level language lev...	Assembly level	Operating system level	Operating system level
13	In computer organizati...	A technique for parallel...	A way to increase me...	The process of writing ...	A type of peripheral de...	A technique for parallel...
14	Which of the following ..	Assembly language	C++	Machine language	Binary code	C++
15	What is the primary ro...	To provide a graphical ...	To manage hardware r...	To execute high-level ...	To design computer ha...	To manage hardware ...
16	What is the main adva...	It has a large set of co...	It provides backward c...	It executes instructions...	It is designed for gener...	It executes instructions...
17	Which computer abstr...	Application level	High-level language lev...	Assembly level	Operating system level	High-level language lev...
18	Which technology allo...	Multithreading	Multiprocessing	Multitasking	Multiprogramming	Multithreading
19	What is the purpose of...	To perform arithmetic ...	To fetch instructions fr...	To manage input/outpu...	To store data temporar...	To fetch instructions fr...
20	Which type of comput...	RAM (Random Acces...	ROM (Read-Only Me...	Cache memory	Register memory	ROM (Read-Only Me...
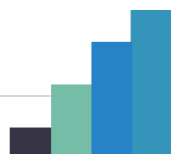
8. All Student Result Class:

- Purpose: Offers teachers an overview of all student results.

- Functionality: Presents a comprehensive list of student scores and performance metrics for analysis.

9. Student Details Class:

  - Purpose: Collects necessary information from students before entering the quiz.

  - Functionality: Prompts students to input required details, such as name and class, to personalize the quiz experience.
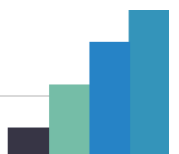
10. Instructions Class:

- Purpose: Provides guidance and instructions for students before starting the quiz.

- Functionality: Displays essential information, rules, and guidelines for students to follow during the quiz.

Instructions

During the exam:

1. The student may not use his or her textbook, course notes, or receive help from a proctor or any other outside source.

2. Students must complete the 10-question multiple-choice exam within the 10-minute time frame allotted for the exam.

3. Students must not stop the session and then return to it. This is especially important in the online environment where the system will "time-out" and not allow the student or you to reenter the exam.

Number of Question: 10
Exam Duration: 10 min
All the Best

START QUIZ/EXAM
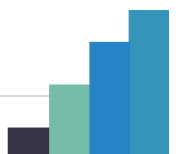
11. Quiz Exam Student Class:

- Purpose: Represents the main quiz interface for students.
- Functionality: Implements the quiz with multiple-choice questions, a time limit, and real-time score updates. Manages the entire quiz-taking process.

| 👤 **Welcome** | Date : 30-11-2023 | Total Time : 10 Min |
| | | Time Taken : 0   15 |

ID : 471

Name : MD. Ashikur Rahman

Total Question : 20

Question No : 1

Your Marks : 00

What is the primary goal of computer abstraction?

○ To hide hardware details

○ To maximize hardware exposure

○ To minimize software complexity

○ To optimize system performance

⊕ Next   💾 Submit
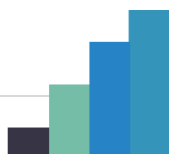
12. Successfully Submitted Class:

   - Purpose: Indicates successful submission of the quiz by the student.

   - Functionality: Displays a confirmation message upon successful completion of the quiz, acknowledging that the answers have been submitted.
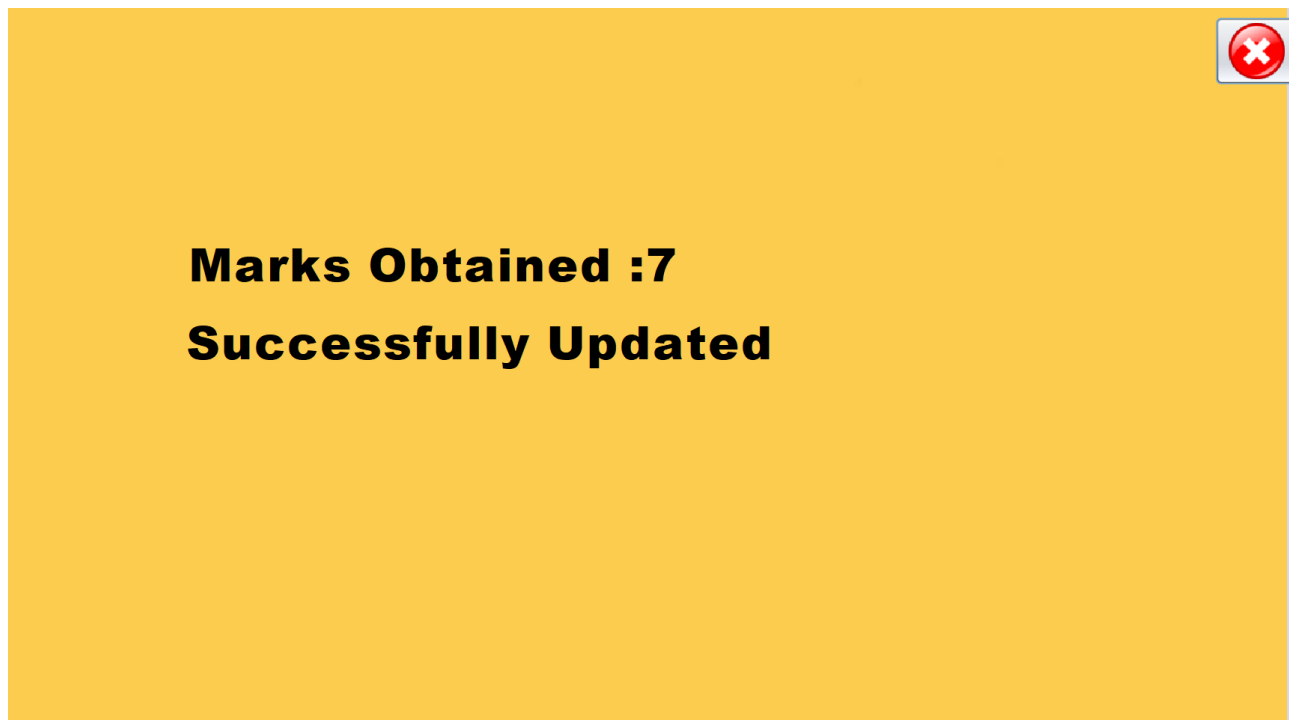
13. Acknowledgement Class:

   - Purpose: Provides acknowledgment or confirmation messages for various actions. - Functionality: Displays messages to confirm successful actions, such as successful login, deletion of a question, or submission of a quiz.

Each class contributes to the overall functionality of the Java Quiz Application, facilitating smooth interactions for both teachers and students.
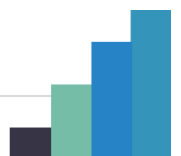
5. Results and discussions

Questions in Database

| id	name	opt1	opt2	opt3	opt4	answer
1	What is the primary goal of computer abstraction?	To hide hardware details	To maximize hardware exposure	To minimize software complexity	To optimize system performance	To hide hardware details
2	Which level of computer abstraction deals with the...	Application level	High-level language level	Assembly level	Logic gate level	Assembly level
3	What is a microarchitecture in computer design?	The highest level of abstraction	The design of the CPU	The programming language used	The software applications running on a computer	The design of the CPU
4	Which level of computer abstraction deals with the...	High-level language level	Assembly level	Machine level	Application level	High-level language level
5	What is the primary purpose of an instruction set ...	To specify the organization of memory	To define the machine language of a computer	To implement high-level programming languages	To manage input/output devices	To define the machine language of a computer
6	Which type of computer architecture has a single c...	RISC	CISC	SIMD	MIMD	CISC
7	In computer architecture, what does SIMD stand for...	Single Instruction, Single Data	Single Instruction, Multiple Data	Multiple Instruction, Single Data	Multiple Instruction, Multiple Data	Single Instruction, Multiple Data
8	Which computer component is responsible for tempor...	Hard disk drive (HDD)	Central processing unit (CPU)	Random access memory (RAM)	Graphics processing unit (GPU)	Random access memory (RAM)
9	The oldest DB model is _____	Network	Physical	Hierarchical	Relational	Network
10	The term "von Neumann architecture" is often used ...	RISC	CISC	Harvard architecture	Single-memory architecture	Single-memory architecture

Student details and results in Database:

| id	name	department	intake	section	gender	email	marks
506	Abdullah Al Mahmud Joy	CSE	49	6	Male	abdullahalmahmudjoy39@gmail.com	14
495	Aysha Siddika Esha	CSE	49	6	Female	aysha.esha@gmail.com	11
487	Kaspia Alam	CSE	49	6	Female	kaspia.alam@gmail.com	10
467	Mirza Niaz Morshed	CSE	49	6	Male	niaz.morshed@gmail.com	13
471	Md.Ashikur Rahman	CSE	49	6	Male	ashikur.rahman498@gmail.com	15

☐ Show all | Number of rows: 25 ⌄ Filter rows: Search this table
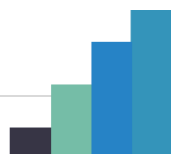
Chapter 6

6. Conclusion

Our Java Quiz project is a success! We've built a smart and easy-to-use app that helps teachers and students, especially during the tough times of the COVID-19 pandemic. Using Java, SQL, and NetBeans, we created a friendly space for learning.

The different parts of the application, like Admin Home for teachers, QuizExam for students, and others, work together to make learning fun and personalized. We made sure teachers can easily manage quizzes, add new questions, and update existing ones.

This project proves that technology can make education better, even when things are changing. The app's design, features, and the teamwork behind it show how tech can bring learning to life.

Looking ahead, our Java Quiz application isn't just a tool for teachers and students—it's a step towards making education more interesting and accessible. This success is thanks to the teamwork and dedication of everyone involved in building this project.